BCIT

COMP 7005 - Computer Network and Protocols

Data Communications Principles

Final Project: Testing

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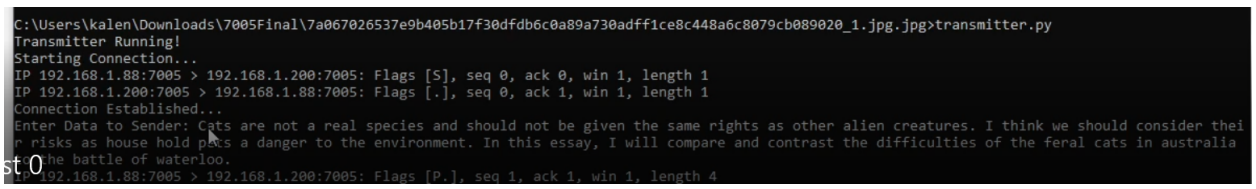
Testing:

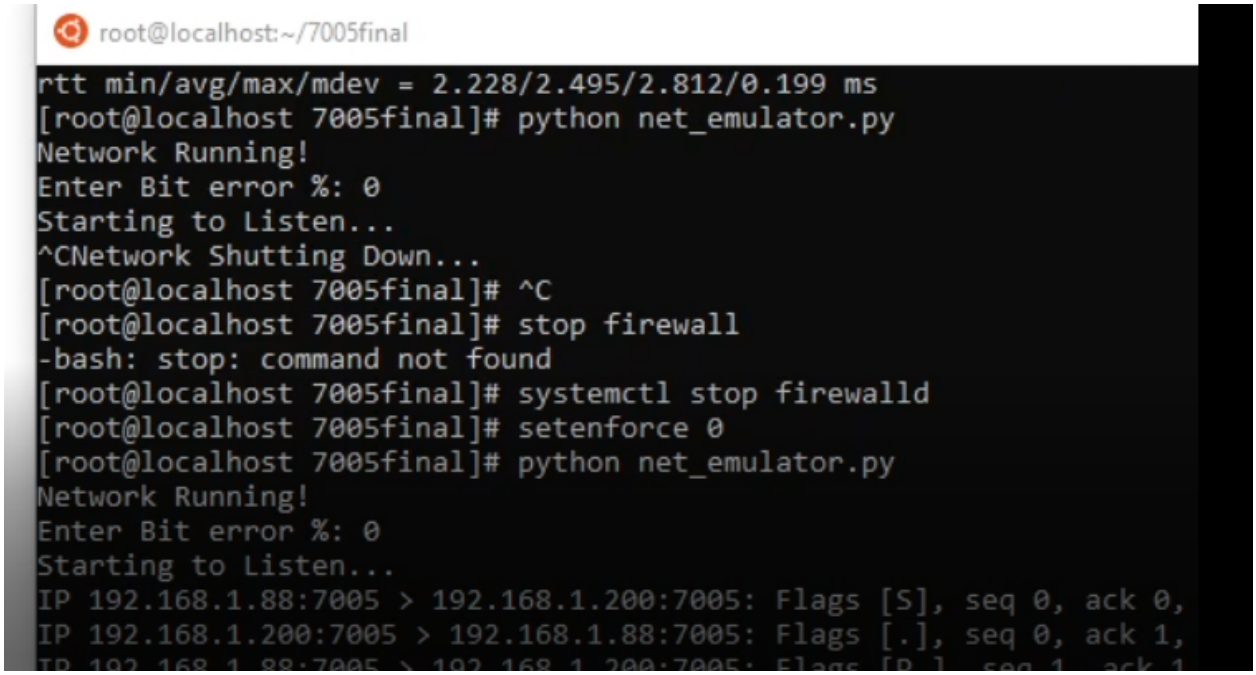
Testing Overview:

Test Number	Packet Loss:	Window Size:	Message:
0	0	4	Cats are not a real species and should not be given the same rights as other alien creatures. I think we should consider their risks as house hold pets a danger to the environment. In this essay, I will compare and contrast the difficulties of the feral cats in australia to the battle of waterloo.
1	20%	4	Cats are not a real species and should not be given the same rights as other alien creatures. I think we should consider their risks as house hold pets a danger to the environment. In this essay, I will compare and contrast the difficulties of the feral cats in australia to the battle of waterloo.
2	40%	4	this is a test
3	75%	4	this is a test
4	100%	4	***N/A***
5	0%	8	Midgets have never ever existed, and we know this after seeing how australia decided to no longer exist them selves. thank you for coming to my ted talk. In this essay we will be discussing the logistics of cat removal in the desert.
6	0%	8	this is a test

Test 0:

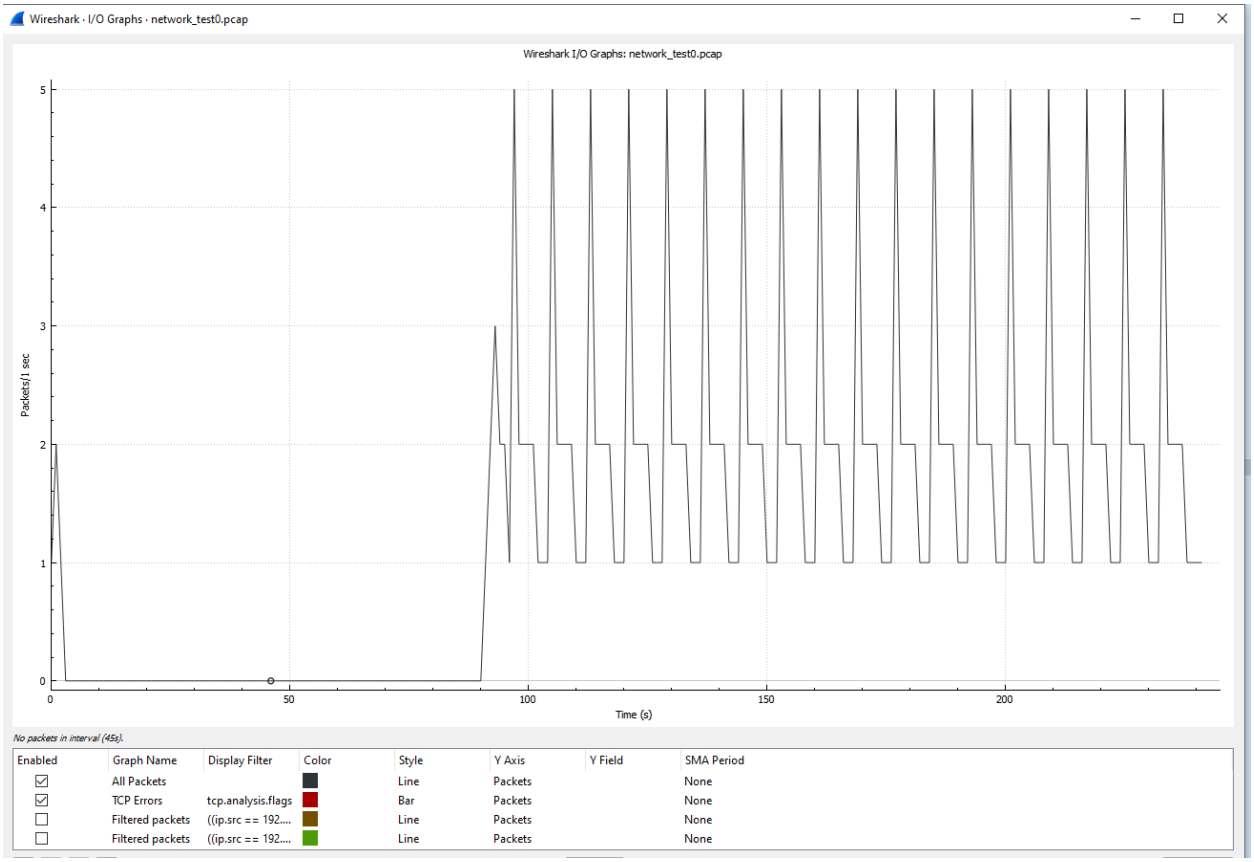
Test 0 was done with a very large message, while only using a window size of 4. The idea was that this test would be able to showcase that our project worked perfectly on it's own. The transfer never had an issue, even handling a large message.





On wireshark you can see that the entire transfer had no lost packets while using the 0% loss. This indicates that the network emulator was a success.

You can see the start of the transaction at the beginning of the I/O graph. Then the few seconds where I typed out the message. Then you can see the transmission taking place as it reaches the window size.



Test 1:

Jumping up from 0% losses to 20% is suddenly very noticeable. By the end of the transaction we had lost 83 data packets and 74 ACK packets.

```
IP 192.168.1.200:7005 > 192.168.1.88:7005: Flags [.], seq 20, ack 288, win 4, length 1
PACKET DROPPED: IP 192.168.1.200:7005 > 192.168.1.88:7005: Flags [.], seq 20, ack 288, win 4,
Number of Data Packets dropped:  83
Number of ACK Packets dropped:  74
Packets Dropped Percentage: 19.949174078780178%
IP 192.168.1.200:7005 > 192.168.1.88:7005: Flags [.], seq 20, ack 289, win 4, length 1
IP 192.168.1.200:7005 > 192.168.1.88:7005: Flags [.], seq 20, ack 290, win 4, length 1
IP 192.168.1.88:7005 > 192.168.1.200:7005: Flags [P.], seq 285, ack 20, win 4, length 2
IP 192.168.1.88:7005 > 192.168.1.200:7005: Flags [P.], seq 287, ack 20, win 4, length 1
IP 192.168.1.88:7005 > 192.168.1.200:7005: Flags [P.], seq 288, ack 20, win 4, length 1
IP 192.168.1.88:7005 > 192.168.1.200:7005: Flags [P.], seq 289, ack 20, win 4, length 1
IP 192.168.1.200:7005 > 192.168.1.88:7005: Flags [.], seq 20, ack 287, win 4, length 1
IP 192.168.1.200:7005 > 192.168.1.88:7005: Flags [.], seq 20, ack 288, win 4, length 1
IP 192.168.1.200:7005 > 192.168.1.88:7005: Flags [.], seq 20, ack 289, win 4, length 1
IP 192.168.1.200:7005 > 192.168.1.88:7005: Flags [.], seq 20, ack 290, win 4, length 1
^CNetwork Shutting Down...
[root@localhost 7005final]#
```

The message for test 0 and test 1 were the same, and the window size was the same, but if you look at the time the transactions took place there is a major difference. This test took

almost 26 minutes to complete the entire transaction. This is why we chose to decrease the size of the message being transmitted for test 2.

Test 2:

Test 4 required us to move from using a large message to a small one. After seeing the previous test at 20% take 26 minutes, we realised that we needed a smaller message for a 40% error test. The test still took almost 30 seconds to complete the transfer. The window size remained at 4.

Test 3:

Test 3 was a test set at 75% rate of failure. I will be honest, we gave up early on this one. The transfer got to 'this' out of 'this is a test'. It took long even to get the three way handshake to function because there were so many errors.

Test 4:

Test 4 was set to 100% errors. This means that there was no possible way that the message could get through. There was no connection. There was no handshake. So by all accounts this was a 100% successful test.

This test was designed to fail, so we did not end up writing a message to send.

Test 5:

Test 5 was designed to showcase the ability to send messages with larger window sizes. All of our other tests before this had window sizes of 4, this was the first test done with a window size of 8. We did set this to 0% loss rate to demonstrate the ability.

Test 6:

Our final test was set up with a 0% loss and 8 window size. It shows a usual transfer with 'this is a test'. The reason this test was included was that it was used as proof to show that our transmission shut down sent out an **End-Of-Transmission** message that it was shutting down. We knew this was an important feature for the project, and we did not directly showcase it in any of our other tests.